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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,109	06/29/2006	Henk Mosseveld	WAS0726PUSA	4337

22045 7590 11/18/2010

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ART UNIT	PAPER NUMBER
1764	

MAIL DATE	DELIVERY MODE
11/18/2010	PAPER

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/551,109
Filing Date: June 29, 2006
Appellant(s): MOSSEVELD ET AL.

Junqi Hang
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 9/10/2010 appealing from the Office action mailed 4/30/2010.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application: 20-39.

(4) Status of Amendments After Final

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

(5) Summary of Claimed Subject Matter

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office

action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(8) Evidence Relied Upon

5,439,953	Ritter et al	08-1995
5,358,998	Wendel et al	10-1994

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 20-27, 29-31, 34-37 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ritter et al (US 5,439,953) in view of Wendel et al (US 5, 358, 998).

Ritter et al disclose in examples 1-4 molding made by mixing components of the composition comprising polyvinyl acetate homo- or co-polymer dispersion comprising either polyvinyl alcohol or starch ether as protective colloid; potato starch and water. Extrusion temperatures in examples 1-4 fall within the claimed range of from 70^0C to 150^0C. It is noted that polyvinyl acetate has a T_g of 30^0C and falls within the range of -30^0C to +120^0C recited in claim 25. The invention of Ritter et al disclose mixing

thermoplasticized starch with thermoplastic water-insoluble polymers of synthetic origin to produce a modified polymer mixed product which ensures biodegradability of the materials and of molded articles thereof (column 2, lines 53-62) and read on the rottable molding of present claims 34-35. Conventional processing methods such as injection molding, extrusion molding, extrusion blowing and film blowing are employed (column 11, lines 7-10). See example 1, wherein poly(vinyl acetate) is present in amount of 16.2% by weight and potato starch in amount of 40.0% by weight.

Ritter et al is silent with respect to functional monomer, amount of protective colloid and polymer in the form of redispersible powder; and starch molding composition as an adhesive.

However, Wendel et al teach that aqueous polymer dispersions containing polymers and sugared starch (abstract). The polymer dispersions can be used in the production of moldings (col. 11, lines 13-15). Monomers which usually increase the internal strength are generally copolymerized in small amounts of from 0.5 to 10% by weight and include preferably N-methylolmethacrylamide (col. 5, lines 20-33). Suitable secondary surfactants include protective colloids in amounts of up to 5% by weight based on the amount of polymerized monomers (col. 6, lines 19-51-53). Notable property of the aqueous polymer dispersions is that they can be converted to redispersible polymer powders by known methods (col. 8, lines 46-49). Therefore, in light of the teachings in Wendel et al, it would have been obvious to one skilled in art at the time invention was made to use small amounts of from 0.5 to 10% by weight of N-methylol methacrylamide in the preparation of the polymer, of Ritter et al, stabilized by protective colloid, in amounts of up to 5% by weight, for realizing increased internal strength and to convert the thus obtained aqueous polymer dispersion to redispersible

polymer powder in a manner known to one skilled in art for ease of handling, storage and transportation.

With respect to starch molding composition as an adhesive, given that the compositional requirements are met, it is the examiner's position that the composition of Ritter et al in view of Wendel et al is intrinsically capable of functioning as an adhesive.

Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ritter et al (US 5,439,953) in view of Wendel et al (US 5, 358, 998), as applied to claim 31 above, in view of Miyamoto et al (JP 2002-020601).

The discussion with respect to Ritter et al in view of Wendel et al above is incorporated here by reference.

Ritter et al and Wendel et al are silent with respect to biodegradable polyester.

However, Miyamoto et al teach biodegradable polyester resin composition that can degrade at a desired rate without lowering strengths of resin and is used as an adhesive (abstract). Therefore, in light of the teachings in Miyamoto et al, it would have been obvious to one skilled in the art at the time invention was made to add biodegradable polyester resin to the molding composition / molding of Ritter et al in view of Wendel et al because Miyamoto et al teach that biodegradable polyester resin can degrade at a desirable rate without lowering strength and one of ordinary skill in the art would expect such an addition to the composition, of Ritter in view of Wendel et al, to provide the benefit of degradation of binder at a desirable rate. Furthermore, case law holds that the selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in Sinclair & Carroll Co. v. Interchemical Corp., 325 U.S. 327, 65 USPQ 297 (1945).

Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ritter et al (US 5,439,953) in view of Wendel et al (US 5, 358, 998), as applied to claim 27 above, and further in view of Famili et al (5,362,778).

The discussion with respect to Ritter et al in view of Wendel et al above is incorporated here by reference.

Ritter et al and Wendel et al are silent with respect to the properties of polyvinyl alcohol.

However, Famili et al teach extrudable PVOH compositions comprising modified starch. The product has improved modulus, reduced elongation and high relative humidity (abstract). Suitable PVOH is 75-99 mol% hydrolyzed and has solution viscosities of 3 to 55 cps at 20^0C as a 4% aqueous solution (column 3, lines 4-10). Therefore, in light of the teachings in Famili et al, it would have been obvious to one skilled in the art at the time invention was made to use polyvinyl alcohol, having the recited degree of hydrolysis of 85 to 94 mol%, and a viscosity of 3 to 15 mPa.s, as protective colloid, in the polymer dispersion of Ritter et al in view of Wendel et al, for above mentioned advantages.

Claims 33 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ritter et al (US 5,439,953) in view of Wendel et al (US 5, 358, 998), as applied to claim 31 above, and further in view of Hashemzadeh et al (US 2002/0135086 A1).

The discussion with respect to Ritter et al in view of Wendel et al in paragraph 3 above is incorporated here by reference. Furthermore, Wendel et al teach that polymer

dispersions can be used as binders for finely divided mineral and/or organic materials, in the production of moldings such as chip boards (col. 8, lines 27-33).

Ritter et al and Wendel et al are silent with respect to cellulose in the form of wood particles, wood fibers, wood meal or mixtures thereof.

However, Hashemzadeh et al teach binder composition comprising substantially similar polymer dispersions as that of Ritter et al and Wendel et al. The binder is used for forming articles from particulate materials such as mineral, fiber or natural materials which include wood shavings, wood, cellulose and others (paragraph 0028). Therefore, it would have been obvious to one skilled in art at the time invention was made to add wood shavings, wood or cellulose, of Hashemzadeh et al, to the composition of Ritter et al in view of Wendel et al prior to molding because Ritter et al in view of Wendel et al contemplate using the polymer dispersion as a binder in forming moldings from finely divided mineral and/or organic material and Hashemzadeh has shown successfully that substantially similar binders can be used for forming articles made from wood shavings, cellulose, wood and one of ordinary skill in the art would expect such a combination to work, motivated by expectation of success.

(10) Response to Argument

Appellants argue examiner admits that Ritter does not teach the use of polymer in powder form, and much less the use of polymer in redispersible powder form and for this reason has withdrawn the previously asserted anticipation rejection.

In response, it is noted that anticipatory rejection was withdrawn in light of the amendments to the claims, filed 5/6/2010, which recited that polymer is in the form of a redispersible powder.

Appellants argue Wendel's disclosure of a general starch-to-polymer weight ratio of 1 to 120% is completely outside the claimed range of 5 to 60% of polymer based on the total weight of starch.

In response, as noted by appellant, the anticipatory rejection based on Wendel et al, has been withdrawn in the office action mailed 11/5/2009 and appellant's arguments are moot.

Appellants argue that Ritter cannot be modified in view of Wendel because such modification to use aqueous dispersion in the form of a redispersible powder would deprive Ritter of water required in the thermomechanical digestion process.

In response, firstly, applicant's attention is drawn to example 1 of Ritter at col. 7, line 53, wherein the composition comprises starch containing 20% of water, and an aqueous dispersion of poly(vinyl acetate). Hence, it is clear that composition of Ritter is not deprived of water, even when aqueous dispersion is used in the form of redispersible powder based on the teachings in Wendel. Secondly, instant claims use the transitional term "comprising" which is open-ended or inclusive and does not exclude additional unrecited elements such as water present in the composition of Ritter et al.

Appellants argue that Ritter's process does not involve a composition which contains both starch and redispersible polymer powder. In this regard, whether this dry redispersible polymer powder of Wendel may be mixed with water is irrelevant.

In response, it is noted that Graham v. Deere analysis was done and the secondary reference of Wendel was brought in to teach that aqueous polymer

dispersions can be converted to redispersible powder in a manner known to one skilled in art, and that a redispersible powder is easy to transport, handle and ship. The required water is already present in the composition (cf. example 1 of Ritter et al, wherein starch comprises 20% of water) and can also be added to the composition, comprising starch (containing water) and redispersible polymer powder, at a later time (i.e. thermomechanical digestion at elevated temperatures and pressures).

Appellants argue that Wendel's polymer dispersion is essentially a homogenized polymer solution stabilized by the starch degradation products such as the sugared starches, wherein in phase separation between a water phase and a polymer phase is intentionally and in effect reduced and/or eliminated. In contrast, polymers are largely water insoluble in the aqueous polymer dispersion of Ritter et al.

In response, appellant's attention is drawn to Wendel, wherein it teaches that aqueous polymer dispersions are systems which contain, as the disperse phase, polymer particles dispersed in an aqueous dispersion medium (col. 1, lines 13-15). Polymer particles tend to agglomerate and are generally stabilized using surfactants. Hence, applicant's argument that polymer dispersion of Wendel is essentially a solution (i.e. separation between water phase and polymer phase is eliminated) is not persuasive.

Appellants argue Wendel is drastically different from Ritter at least with respect to the use of starch and starch-to-polymer ratios. One cannot simply "pick and choose" isolated teachings from a reference while disregarding other salient features of the reference of Wendel.

In response, both Wendel and Ritter are directed to compositions comprising starch and aqueous polymeric dispersions. Hence, it is the examiner's position that Ritter and Wendel are combinable. Additionally, Wendel is only used or its teachings that polymer dispersions comprising functionalized monomers provide increased internal strength, are redispersible (i.e. can be dispersed in water at a later stage).

Appellants argue the claimed starch molded article, of claim 39, can be in the form of pressed sheets, shaped pellets, granules, and have moisture content less than 1% by weight, can withstand water-induced disintegration and certain fracture test conditions. None of these features are taught in the cited art.

In response, instant claim 39 does not recite the features argued by appellant. Case law holds that limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Appellant's argue that starch modified polyvinyl alcohol is totally different from starch composition comprising a redispersible polymer powder in which polyvinyl alcohol is a protective colloid.

In response, Famili is only used for its teaching that PVOH having a degree of hydrolysis of from 75-99 (i.e. overlaps with the instantly claimed degree of hydrolysis of 85 to 94%) and a viscosity of 3 to 55 cps (i.e. overlaps with instantly claimed viscosity of 3 to 15 mPas) at 20^0C , provides for improved modulus, reduced elongation and high relative humidity in the composition comprising both modified starch and PVOH.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Karuna P. Reddy/

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